Building 886 Cluster Closure Project

Health And Safety Plan

RF/RMRS-98-207

Developed by:
Rocky Mountain Remediation Services, L.L.C.
Safe Sites of Colorado, L.L.C.

REVISION 0

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BUILDING 886 CLUSTER DECOMMISSIONING PROJECT HEALTH AND SAFETY PLAN

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FEBRUARY 3, 1998

This Health And Safety Plan has been reviewed and approved by:

M. C. Broussard, Project Manager — 1/28/98 Date

G. L. Fischer, Facility Manager — 1/28/98 Date

J. L. Anderson, Technical Support Manager — 1/28/98 Date

R. McCafferty, Lead IH — 1/28/98 Date

S. A. Newsom, Radiological Engineer — S.A. Newsom per telecon 1-28-98 Date

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TABLES

ACRONYMS

ACM	Asbestos Containing Material
AHA	Activity Hazard Analysis or Job Safety Analysis (JSA)
ALARA	As Low As Reasonably Achievable
Be	Beryllium
CFR	Code Of Federal Regulations
D&D	Decontamination And Decommissioning
DOE	U. S. Department Of Energy
ESH&Q	Environmental Safety Health And Quality
EWP	Enhanced Work Planning
HASP	Health And Safety Plan
HSP	Health And Safety Practices
IH&S	Industrial Hygiene And Safety
ISM	Integrated Safety Management
IWCP	Integrated Work Control Program
LCO	Limiting Condition of Operation
LO/TO	Lockout/Tagout
LS/DW	Life Safety/Disaster Warning
MAP	Management Assessment Program
OSHA	Occupational Safety And Health Administration
PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
PHA	Preliminary Hazards Analysis
RCM	Radiological Control Manual
RCT	Radiological Control Technician
RFETS	Rocky Flats Environmental Technology Site
RMRS	Rocky Mountain Remediation Services, L. L. C.
RWP	Radiological Work Permit
SSOC	Safe Sites of Colorado, L.L.C.

1. GENERAL INFORMATION

1.1 Scope And Applicability

The purpose of this Health And Safety Plan (HASP) is to identify potential safety and health hazards associated with the Building 886 Cluster Closure Project. Procedures and controls will be identified in this HASP that will help prevent and reduce the risk of personnel injury and/or illness, property damage, and environmental impact. This HASP is applicable to all decommissioning work related activities performed on Building 886 and its supporting facilities. Major activities include, but are not limited to:

- Sampling, characterization, and removal of chemical, hazardous, and radiological materials and waste
- Glovebox and associated equipment and utilities removal
- Major decontamination activities
- Building and structure dismantlement

All project personnel and subcontractors will utilize the 886 Cluster Closure Project HASP, subcontractor safety plans, Contract Section 01700, U. S. Department of Energy (DOE) Orders 5480.9a (to be replaced by 440.1), the DOE Hoisting and Rigging Manual, the DOE Construction Manual, the DOE Handbook For Occupational Health And Safety During Hazardous Waste Activities, and the Rocky Flats Environmental Technology Site (RFETS) Health And Safety Practices (HSP) Manual as the upper tier documents to govern health and safety of the workers during the decommissioning process.

Occupational Safety And Health Act (OSHA) Standards 29 Code of Federal Regulations (CFR) 1910 and 1926, and revision 5 of the Building 886 Basis for Interim Operation (BIO) and Interim Technical Safety Requirements (interim-TSRs) revision 5 will be utilized in conjunction with other approved company and subtier-specific documents to provide controls to preclude unacceptable health and safety impacts to the general public and the environment and to ensure worker protection and health. From a radiological standpoint, the DOE Radiological Control Manual (RCM), 10 CFR 835 and the RFETS-specific RCM (Site RCM) will be utilized for worker radiological safety. Additional Health and Safety information aids may be distributed to project personnel.

Any documentation produced during the course of the project relating to the Health and Safety program shall be controlled in accordance with and meet the requirements of Title 10 CFR 830.120, *Quality Assurance.*

No task (excluding walkdowns or general work tasks such as LCO, Non-LCO surveillance's and other tasks as designated by the Facility Manager or the Shift Manager)

will be performed in support of this project until an Activity Hazard Analysis (AHA) (reference Appendix A) has been written and approved to address the task or activity. Each AHA will function as a documented Preliminary Hazard Analysis to identify the principal steps involved, the potential safety and health hazards associated with each step, the specific controls and monitoring associated with each potential hazard, the task-specific special equipment to be used in performing the activity and any additional training requirements.

1.2 Project Description

The mission of the Building 886 Cluster was to house and to provide support for the Critical Mass Laboratory (CML) located in Building 886. Prior to ceasing operations in 1989, approximately 1700 criticality experiments were conducted at the CML starting in September 1965 through October 1987. Building 886 is estimated to contain less than 16 kilograms of highly enriched uranium (93.2%) and less than 11 grams of plutonium.

The scope of the Building 886 Cluster Closure Project consists of the removal of numerous components, associated equipment, and building structure materials in 6 buildings and 6 cargo containers/trailers which contain the following type of materials:

- Lead lined gloveboxes
- Non lead lined gloveboxes
- CML-related equipment such as vertical and horizontal split tables
- All associated utilities
- Piping, valves, panels, and other structural components
- Ventilation ducting, filter housings, hoods and fans
- Miscellaneous containers, tool boxes, and drums
- Any other items or components to allow total decommissioning of the rooms. This can include: characterization activities, decontamination of equipment and building structures, draining and decontamination of piping, removal of concrete structures, ceiling tiles, framing, filters, room bracing, etc.

This project will result in the generation of hazardous, mixed, low-level waste, industrial, and transuranic wastes as described in the project's Waste Management Plan. The project has completed a Reconnaissance Level Characterization that identified hazardous, chemical, and radiological contaminants in the various rooms and structures. As equipment is being removed from these rooms and structures, additional characterization

surveys will be performed as required.

2. Health & Safety Strategy

Safety is a priority at the site. All operations at the site shall be conducted in accordance with the guidance of the HASP. This HASP and related authorization bases will be revised as required by project operations and facility configuration changes at each step to ensure compliance with the most current applicable standards.

The Defense Nuclear Facility Safety Board Technical Report # 15 , *Operational Formality for Department of Energy Nuclear Facilities and Activities* describes two key items that must be developed, understood and agreed upon in order to achieve the required formality of operations to perform closure work:

- the analysis of a specific scope of work and resulting controls to form the basis for ensuring safe nuclear operations and
- the adoption of practices or safety program commitments to ensure that the work is performed to generally accepted safety standards

These tailored controls and other safety-related commitments are identified and applied to a defined scope of work. Defense in depth is implemented primarily though a series of barriers that should never be jeopardized before harm can occur to people or the environment.

In addition to the above principles, the authorization basis must facilitate site closure (i.e. the AB is concise enough to allow line managers to safely and efficiently perform work).

Therefore the health and safety strategy consists of the following:

An integrated safety management process will be implemented that is structured around five core principles (1) define the scope of work, (2) analyze hazards, (3) develop and implement controls, (4) perform work within controls, and (5) provide feedback and continuous improvement. The process will facilitate work by identifying key hazards up front and incorporating risk management into the job planning process.

2.1 Authorization Basis Strategy

The Building 886 Cluster is currently operated under a Basis for Interim Operation (BIO) document as authorization basis and may require changes and references to supporting programs in order to safely perform facility closure activities. Building 886 is categorized as a Hazard Category 2 Nuclear Facility. All closure activities will be evaluated with respect to the current authorization bases to address the defined scope of work qualitatively judged to pose the bounding hazards associated with closure. This will

establish a safety envelope with a suite of controls adequate to address known hazards of anticipated closure activities.

2.1.1 Reduction of Controls

The authorization basis controls will contain the tailored set of safety management system elements necessary to protect personnel and the environment. Each major infrastructure program (configuration control, quality assurance, conduct of operations, radiological control, etc.) will be addressed.

The authorization bases will enable a graded approach through three methods:

A portion of the Limiting Conditions of Operations (LCOs) will be revised to use applicability statements, or other permissives to allow controls to be eliminated as the hazard is eliminated.

In many cases, the safety bases will rely on site programs, which utilize a graded approach so that when the hazard is eliminated, the control is eliminated. For example, as contamination areas are decontaminated, the surveys and controls required by the Radiation Control Program will be reduced as well.

In instances where controls are not explicitly addressed by detailed applicability statements, exceptions or permissives, the page change processes would be utilized to revise the required control as hazards are eliminated. The JCO process could also be used to address non-compliance with the required controls.

At some point in the facility closure, it is expected that the authorization basis will contain only the program controls necessary to protect the worker against normal industrial hazards in a radiological facility. Because of the low amounts of uranium necessary to recategorize Category 2 nuclear facilities to Category 3 nuclear facility, or recategorize Category 3 nuclear facilities to radiological facility status, it would be extremely difficult to change status until late in the closure process. However with few or no nuclear facility controls (e.g. LCOs), there would be little efficiency gained through category changes, since the controls would have already been eliminated, and cost savings are minimal.

2.1.2 Evaluation of new activities/hazards

Closure activities not specifically addressed by the AB will be evaluated against that envelope using the Unreviewed Safety Question Determination (USQD) process. The AB controls suite will be adjusted as respective hazards are reduced or new ones introduced. The authorization basis safety envelope may require adjustment (via the USQD or the annual AB update process) with RFFO concurrence as configuration of the facility is changed, new activities are planned, or new hazards are identified. The work will be performed under the defined safety controls and programs by trained workers. Reviews and authorization to proceed with activities will ensure recognition of the AB safety

envelope.

The nature of closure activities requires continuous reviews and feedback to verify proper hazard identification and operational controls. Through these reviews, process improvements are expected. The facility maintains the current approved safety bases (BIO, interim-TSRs) for Building 886.

2.2 Criticality Safety

Specific requirements for criticality safety are addressed in the BIO and interim-TSRs. Any project activity that could adversely affect residual nuclear material inventory shall be evaluated by the Criticality Safety Officer (CSO) in accordance with the BIO and approved by the Facility Manager prior to work.

2.3 Overview of Hazards

A number of hazards are already known to exist in the Building 886 facility. One of the main hazards is radiological contamination. The CML at Building 886 started operation in 1965 and has not been operated for ten years. During that period, a number of leaks and spills occurred. It has always been standard operating practice to decontaminate an area after an upset event, although the level of decontamination is often not known. Measuring these levels today, after layers of paint, and in the presence of elevated background radiation levels would reveal only the hot spots. It will therefore be assumed that an area is contaminated, unless otherwise known and verified.

A number of chemicals have been used in the Building 886 Cluster. Most of these chemicals are documented and have been removed. The remainder of the chemicals in the facility are believed to have been identified and entered in the chemical tracking system.

Machine, hydraulic, and lubricating oil and greases exist in various machines, gearboxes, and equipment. PCB is also likely to be encountered in equipment and electrical devices. Due to the age of the facilities, considerable amounts of asbestos are present in the insulation and building materials. Lead is also present in the glovebox shielding, and some of the building materials.

Aside from the radiological and chemical hazards, industrial hazards are expected during decommissioning activities at the Building 886 Cluster. These include, but are not limited to, the following hazards:

- Heavy equipment hazards
- Excavation hazards
- Noise exposure hazards
- Heat and cold stress hazards
- PPE hazards (such as increased worker stress, reduced visibility, communication problems, etc.)

- Overhead and facility power line hazards
- Vehicular traffic hazards
- Portable electric generator hazards
- Hand tool hazards
- Compressed gas hazards
- Hoisting and rigging equipment hazards
- Fork truck hazards
- Ladder hazards
- Elevated work hazards
- Flammable or combustible liquid storage hazards
- High temperature, high pressure decontamination system hazards
- Respirable dust (silica, glass, etc.) hazards

2.4 Worker Safety

Worker involvement is a vital component in the project safety programs. This involvement is necessary for the overall success in implementing safety controls in a manner consistent with the efficient completion of project operations.

Safety will be enhanced through the implementation of several key programs:

- Management Leadership and Employee Participation
  Establishment of safety councils, sharing of lessons learned, Management Safety Walkdowns, Safety Meetings, Employee Recognition
- Workplace Analysis
  Development of Activity Hazard Analyses, Safety Inspections
- Accident and Record Analysis
  Accident Investigations, Tracking and Trending of safety data
- Hazard Prevention and Control
  Evaluation of work areas, Activity Hazard Analyses, implement controls
- Emergency Response
  Conduct drills/exercises, reinforce proper response to emergencies
- Safety and Health Training

2.4.1 Enhanced Work Planning

Enhanced Work Planning (EWP) is the natural implementing vehicle to involve workers, and to incorporate the five key elements of the Defense Nuclear Facility Safety Board recommendation 95-2. These key elements -- work scope reviewed and prioritized; work scope analyzed for hazards and categorized based on risk; controls established based on hazards, risk, and experience of workers; work performed safely, efficiently, with appropriate degree of supervision; and continuous improvement and lessons learned -- encompass the essence of an effective, efficient, and safety conscience work process.

EWP also serves as a tool to implement the Integrated Safety Management (ISM) process. The ISM process explains how safety is integrated into management and work practices at all levels.

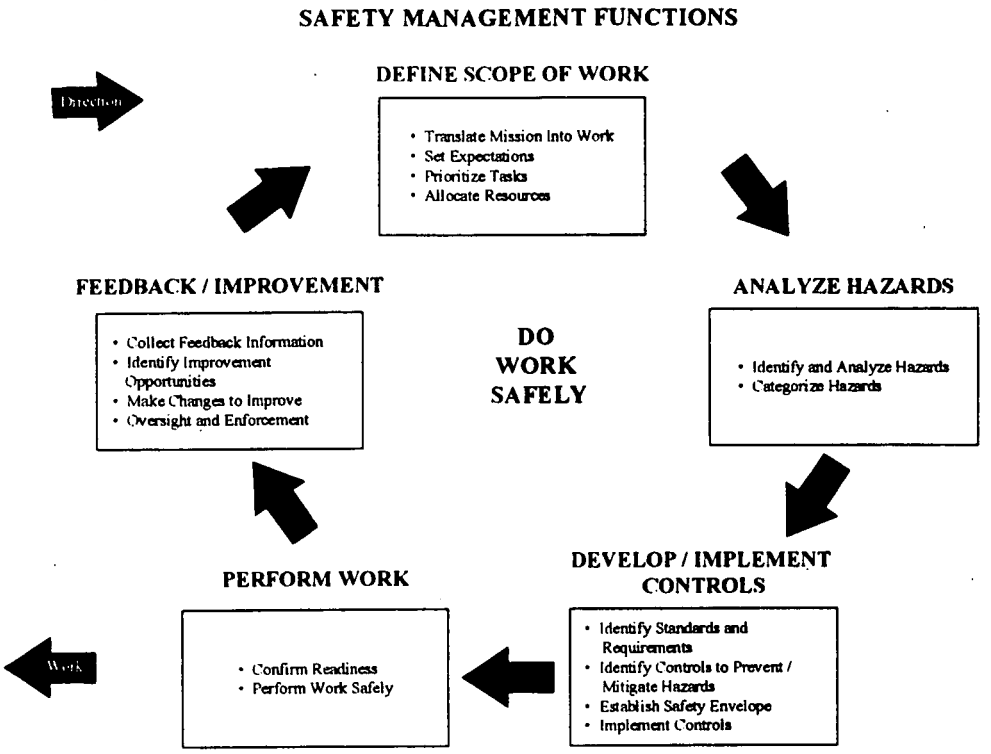


FIGURE 2-1

The RFETS Enhanced Work Planning program is designed to provide a safer, more efficient work environment by:

- Encouraging worker participation in the initial work planning process to enhance the effectiveness of safety and work efficiency.
- Ensuring hazard analysis and controls are appropriate for the job.
- Improving worker knowledge of safety requirements.
- Fostering teamwork between hourly and salary personnel.
- Improving the technical accuracy and workability of work packages.
- Balancing the degree of work instruction, skill-of-craft, and worksite supervision.
- Reducing the overall time to plan, review, and approve work packages.
- Promoting realistic resource-loaded schedules.
- Enhancing job coordination and improving the efficient execution of the work.
- Continuous improvement through real-time feedback.

Enhanced Work Planning considers the entire work process and continually asks the

questions necessary to implement a safer, more efficient work control process. However, in the traditional approach to the work control process, technical specialists, management, and workers are given work packages for review during various phases of the work planning process. When changes are made by one or more of the reviewers, the package must be reviewed again by all parties. This sequential review process is inefficient and tends to create conflict between planners, reviewers, and workers. Enhanced Work Planning is designed to improve the traditional work control process, primarily through extensive communication and feedback from the appropriate mix of personnel responsible for the work.

2.5 Integrated Safety Management (ISM)

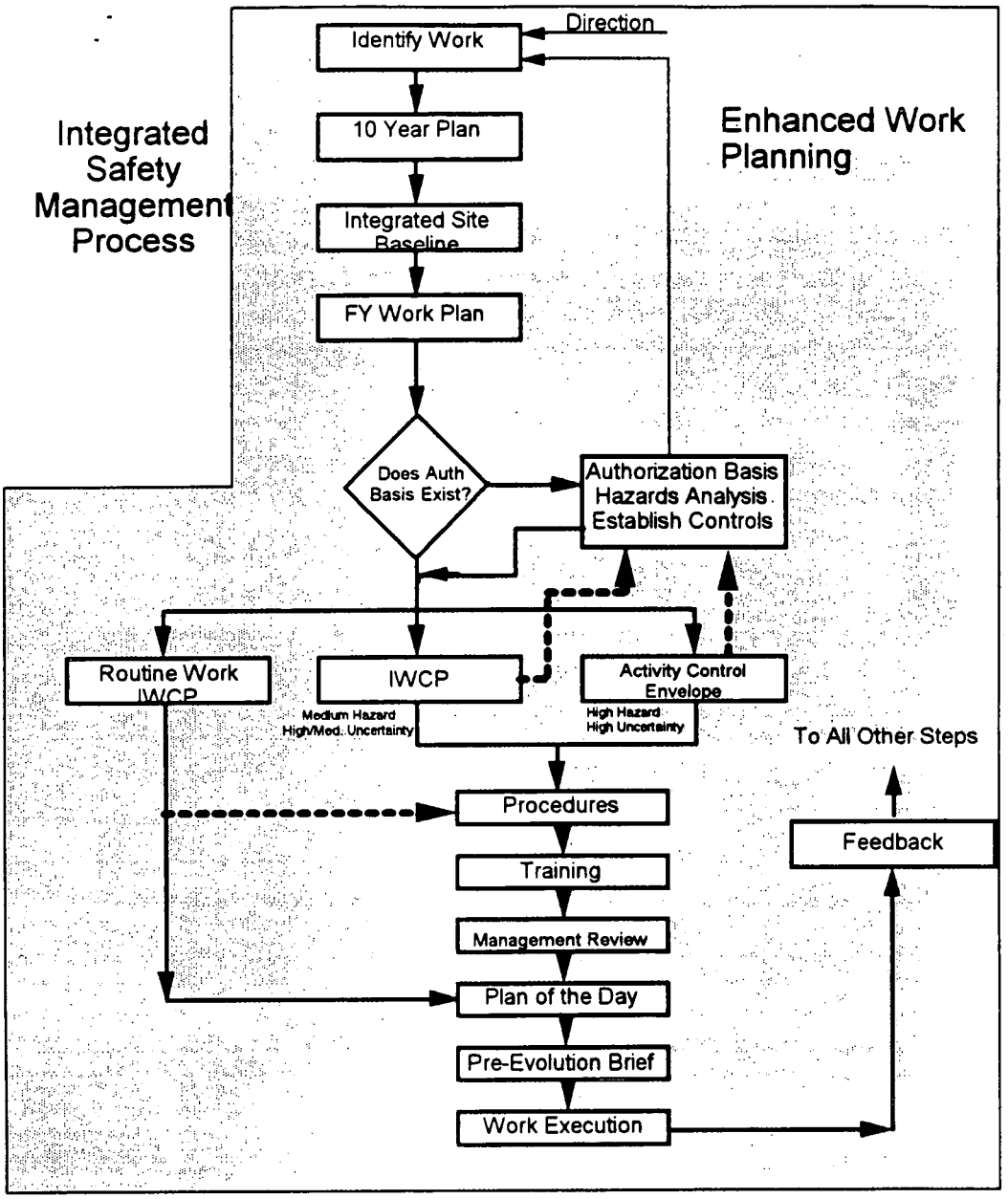
Each of the above subsections combine and work together to form the Integrated Safety Management process which is essential for safe operations at RFETS. This process establishes a single defined safety and environmental management system that integrates standards and requirements into the work planning and execution processes to effectively protect the public, worker, and the environment. K-H and its subcontractors are committed to using a single integrated system to perform all work safely at the site. This integrated system combines a diverse group of people and risk graded infrastructure programs to satisfy the multiple safety environmental and health needs uniformly.

In this process, lower risk activities would be considered Routine Work, with a basic Integrated Work Control Procedure (IWCP), without an Activity Control Envelope (ACE) required for safe completion of the work. On the other end of the spectrum, more complex, high risk work would require the preparation of an ACE as well as some manner of demonstrating readiness for this activity. Routine work would encompass activities such as removal of lighting, elimination of furniture, cleaning of floors for RCRA closure, etc. High Risk work would encompass activities such as glovebox removal, stripout of plenums, etc. Figure 1-2 identifies the flowchart for implementation of the Integrated Safety Management Process.

The engineering package development and IWCP process has been combined to develop work instructions for the Building 886 Cluster Closure Project.

Based on input from the project team, walkdowns, characterization data and applicable building documents, an engineering package will be developed for each work area. The engineering packages will contain detailed work instructions for each closure activity. The packages include engineered radiation controls, health & safety practices, and waste management requirements, in addition to the decontamination, disassembly, and size reduction instructions. Work instructions will be written such that they can be used directly as the IWCP. Isometric drawings, piping and instrument drawings, and photographs will be used as tools to supplement the work instructions.

Figure 2-2 Integrated Safety Management Process



2.6 Preliminary Hazard Analysis

During the initial planning stages for the D&D of the Building 886 Cluster, a Preliminary Hazard Analysis Overview , Tables 2.1 through 2.4, were produced to evaluate the potential health and safety hazard baseline for the project in general. This PHA includes an evaluation of the types of hazards associated with each phase of the project. Potential health hazards could include: lead, asbestos, radioactive materials, or other hazardous materials, and/ or chemicals. Potential safety hazards may include: hoisting and rigging, scaffolding usage, lockout/ tagout concerns, fall protection issues and confined space entries. Characterization of asbestos, lead, Polychlorinated Biphenyls (PCBs), uranium, plutonium, and radioactive contaminates was completed in accordance with the approved Building 886 Cluster Reconnaissance Level Characterization Plan and Site procedures.

Additional hazard analysis information from Chapter 4, *Safety Analysis* of the BIO is used for determining the baseline.

The development and use of an AHA for specific activities shall be used to meet the need for continuously updated documentation of Preliminary Hazard Analysis baseline information.

Table 2-1 Preliminary Hazard Analysis Overview

Planning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Perform building walkdowns to identify IWCP work steps.	Tripping, falling, exposure to chemicals, hazardous substances and/or radioactive materials. Also, exposure to noise hazards.	No planning, lack of communicating between work groups, improper use of RWPs, not following room or building instructions.	• Develop AHA's • Conduct effective pre- evolution briefings • Follow all building instructions • Ensure all personnel have been properly trained before entry • Adequate RWPs are developed and followed
Move office equipment and furniture to prepare for D&D activities.	Back strains, pinch points, extremity injuries due to falling objects or moving vehicles.	Improper lifting of equipment, careless handling of equipment, improper planning and walkdowns. No continuing observations or use of the buddy system.	•Proper training conducted and documented •Use of the buddy system •Proper use of forklifts and trucks including operating alarm systems and brakes •Planning meetings and briefings completed •Proper use of AHA • Adequate RWPs are developed and followed
Perform hazard analysis characterization activities. This includes asbestos, chemical, lead and radiological sampling.	Overexposure to substances, accidental inhalation of substances, absorption into skin of substances, eye and skin irritation. Exposure to radiological contamination.	Improper or no use of prescribed PPE, RWP lack of proper planning, not following sampling procedures correctly, improper transport or handling of samples.	•Follow AHA •Wear prescribed PPE properly •Conduct planning meetings and briefings •Follow RWP •Ensure all required training has been completed

Table 2-2 Preliminary Hazard Analysis Overview

Abatement Phase - Asbestos/Lead

Major Work Task	Hazard	Cause	Preventive Measures
Perform asbestos and lead abatement and clean up activities.	Exposure to asbestos airborne and surface contamination fibers which are lung hazards. Exposure to lead materials is hazardous to internal organs of the body. Exposure to radiological contamination.	Improper clean up techniques including: Improper tent , decontamination or PPE usage. Inadequate ventilation. Improper waste handling and disposal. Improper or no use of RWPs	•Obtain the services of a certified state abatement inspector or Certified Industrial Hygienist to plan and supervise the abatement project •Ensure all workers are trained as asbestos workers •Ensure all RFETS asbestos/lead prerequisites are met prior to job commencing •Develop and implement an AHA(s) for the job •Ensure all medical, training and PPE prerequisites are met •Ensure the proper air monitoring sampling is performed during the course of the job by IH&S personnel •Ensure all posting and clearance sampling is performed • Adequate RWP developed and followed as required

Table 2-3 Preliminary Hazard Analysis Overview

Abatement Phase - Radiological

Major Work Task	Hazard	Cause	Preventative Measures
Perform radiological decontamination operations.	Exposure to radioactive materials internally and externally. Cell damage and damage to internal body organs can occur with overexposure to radioactive materials. Improper use of scabbling or other decontamination equipment can injure extremity or other limbs of workers by causing gash or cutting wounds.	Improper clean up techniques including: Improper containment , decontamination or PPE usage. Improper ventilation usage. Improper waste disposal and handling. No or improper training in the proper use of decontamination equipment.	•Ensure all workers are trained as Rad Worker II •Ensure all RFETS rad. prerequisites are met prior to job commencing •Develop and implement AHA(s) for the job •Ensure all medical, equipment, training, and PPE preq. are met •Ensure that proper radiological monitoring is performed •Follow the RWP instructions, including ALARA review if required

Table 2-4 Preliminary Hazard Analysis Overview

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Deenergize work areas and remove cables and wiring.	Electrical shock to body, cutting of extremities or body parts using wire strippers or other hand tools, falling off ladder or scaffolding, if used. Exposure to radiological contamination.	LO/TO not used properly, all workers not informed of LO/TO status. Improper use of hand tools, ladders or scaffolding. Improper lighting in room can cause improper use of equipment as well. Improper or no use of RWPs	•Utilize lockout and tagout procedures properly •Inspect all hand tools before use •Ensure all workers are trained in ladder, scaffolding and fall protection measures before using this equipment •Develop and utilize task specific AHAs •Perform work area walkdown and conduct proper planning meetings and briefings • Ensure all worker training is current • Adequate RWP developed and followed
Move equipment out of rooms or area and transport utilizing forklifts, pallet jacks, or pick up trucks.	Back injuries, pinching, and extremity damage by dropping or falling objects. Internal and external body injuries by vehicle impact. Eye injuries by poking or dust particles in eye. Noise hazards. Exposure to radiological contamination.	Improper lifting techniques, job flow not planned properly, pre job walkdowns not performed, vehicle alarm systems not working, buddy system not used, lack of attention to detail, worker fatigue or no use or improper use of PPE. Improper or no use of RWP.	•Perform pre job walkdowns •Develop AHAs for job •Use buddy system •Ensure vehicle alarm and braking systems are working properly •Utilize PPE properly •Perform proper lifting techniques •Perform pre job warm up exercises before lifting •Do not attempt to move items that are stacked too high •Cover all sharp edges with taping material • Adequate RWP developed and followed

Table 2-4 Preliminary Hazard Analysis Overview (Continued)

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Cut out piping systems in rooms or work areas.	Cutting of body limbs or body parts with mechanical equipment. Piping falling on feet, pinch points of rolling pipe, liquid splashes if piping is not drained, springing of piping into body when cut. Exposure to radiological contamination.	Improper use of mechanical equipment including no training of equipment being used, piping not rigged or restrained properly, piping not drained prior to cutting. Improper or no use of RWP	•Proper training with cutting equipment •Develop and utilize AHA for job tasks •Rig and restrain piping properly •Utilize pipe caps after cutting to keep debris from falling out and cover sharp edges of pipes after cutting •Ensure piping has been properly taken out of service •Utilize proper PPE as described in the AHA and RWP • Adequate RWP/ ALARA review developed and followed
Rig piping and equipment out of rooms.	Bodily injuries due to falling objects or pinching of workers due to space limitations. Exposure to radiological contamination.	No rigging plan, improper rigging techniques, improper worker body positioning. Improper or no use of RWPs	•Develop rigging plan •Comply with all RFETS standards for rigging • Develop AHA and implement •Perform pre job walkdown and conduct pre-evolution •Walkdown rigging path - all phases •Perform pre and post job inspections on all rigging equipment •Ensure all workers are properly trained • Adequate RWP developed and followed

Table 2-4 Preliminary Hazard Analysis Overview (Continued)

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Packaging waste into containers for storage and shipment.	Pinching of extremities on container lids, barrels rolling on feet, back strains, foot injuries as vehicle wheels impact or roll onto extremities, cuts/gashes of hands by tooling. Exposure to radiological contamination.	Improper lifting and handling techniques, wrong tooling used to put lids on containers, pallet jack or forklift ramming into workers, job rushed or not planned properly. Improper or no use of RWPs	•Develop AHA and implement •Review lessons learned from previous waste handling operations •Develop proper tool list before starting job •Ensure all waste containers are properly staged before starting job •Ensure all building notifications are made before moving and handling waste •Follow all RFETS requirements for waste handling and movement • Adequate RWP developed and followed
Cut out and remove gloveboxes in rooms or work areas.	Pinch points, foot and hand injuries, cutting of hands/arms, eye and head injuries, burning of skin or extremities. Exposure to radiological contamination.	Improper use of grinders or no guards on grinders, cramped working conditions, bad lighting, limited vision, breaking of leaded glass, plasma slag burns through clothing, improper use of PPE. Improper or no use of RWPs	•Proper training with cutting equipment •Develop and utilize AHA for job tasks •Rig and restrain gloveboxes properly •Utilize pipe caps on glovebox piping after cutting •Ensure gloveboxes have been properly taken out of service before work starts •Utilize proper PPE as described in the AHA •Perform tooling inspections before each use • Adequate RWP/ALARA review developed and followed

Table 2-4 Preliminary Hazard Analysis Overview (Continued)

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Construct and utilize scaffolding to perform job tasks.	Fall hazards, workers struck by failing objects, hand injuries. Exposure to radiological contamination.	No use of fall protection, improper training, no use of PPE, improper use of tooling, improper rigging and transport of scuffling pieces, no scaffold inspections, scaffold collapse. Improper or no use of RWPs	•Proper training for scaffold erection and use •Fall protection and rigging training •Proper use of PPE •Develop AHA •Perform documented scaffolding inspections •Ensure all scaffolding is tagged properly •Ensure all toeboards and siderails are in place • Adequate RWP developed and followed
Perform decontamination operations using scabbling machines, hydrolazing techniques, hand wiping methods or by applying stripcoat decontamination paint.	Extremity injuries of hand and feet by gouging, cutting or impact. Inhalation, ingestion or skin exposure to radioactive materials and ammonia vapors. Electrocution. Falls.	Improper or no training on equipment used for decontamination, improper work area ventilation, improper use of PPE, no job planning. No LO/TO of work area. No fall protection.	•Conduct mock up training on decontamination equipment and stripcoat operations •Develop AHA for job tasks •Ensure work area is properly ventilated before applying stripcoat •Ensure LO/TO operations have been performed •Wear prescribed PPE as determined by IH&S and Rad Protection •Utilize fall protection, when required •Follow all AHA and RWP requirements
Perform final cleanup of building/structure.	Tripping, falls, head wounds, pinch points, punctures, contusions, skin contamination, inhalation, absorption of radioactive materials.	Housekeeping, falling objects, non use of PPE, improper use of PPE, sharp edges or sharp objects not protected, no fall protection, improper ladder use.	•Perform weekly housekeeping inspections •Utilize fall protection, when applicable •Develop AHA for job task •Utilize PPE •Follow all ALARA reviews, AHAs, and RWP

Table 2-4 Preliminary Hazard Analysis Overview (Continued)

Dismantlement And Decommissioning Phase

Major Work Task	Hazard	Cause	Preventative Measures
Perform final survey of building.	Falls, head wounds, electric shock, abrasions, cuts, pinches.	No fall protection, improper use of instrumentation, working in tight spaces, tripping hazards, bad housekeeping , improper termination of wiring.	•Develop AHA •Perform pre job walkdowns •Utilize fall protection, when required •Complete ladder training, as required •Utilize two person rule when working in elevated locations •Procure confined space permits and training, when required •Follow all AHA, RWP and Final Survey Plan requirements
Perform demolition activities of building/structure.	Body contusions, head injuries, suffocation, fatalities, breathing hazards.	Wetting of concrete surfaces not utilized, barriers not used properly, thorough inspections of work area not performed prior to demolition activities, lack of attention to detail.	•Develop job AHA •Perform pre job walkdowns •Utilize PPE as prescribed by IH&S •Maintain wetting of debris with fire hoses as demolition occurs

3. Organizational Responsibilities

3.1 Project Manager

The project manager is responsible for overall management and compliance with federal, state, and local health and safety requirements and policies, plans and procedures for this project.

The project manager must ensure adequate and available resources are maintained to ensure compliance and safety of every worker (reference Figure 3-1 for a detailed review of the project organizational chart).

3.2 Project Safety Officer

The Project Safety Officer or designee is responsible for verifying compliance with all applicable safety and health requirements, and coordinating all required health and safety monitoring and sampling. The Project Safety Officer shall review and approve all AHAs.

The Project Safety Officer is also responsible for the development of the HASP, assisting with development of AHAs and providing technical guidance with respect to all applicable health and safety requirements.

3.3 Radiological Safety Organization

3.3.1 Radiological Safety Authority

Radiological Safety Authority - is responsible for the overall radiological safety while closure activities are being performed during the Building 886 Closure Project, and is responsible for the overall implementation of the RFETS radiological control program.

3.3.2 Radiological Safety Technical Supervisor

Radiological Safety Technical Supervisor - ensures compliance with the Radiological Work Permit (RWP) and applicable procedures, and serves as the technical point of contact for the RCTs assigned to closure projects. Reviews Radiological Surveys, as required to support the project's schedule.

3.3.3 Radiological Control Technicians (RCTs)

Radiological Control Technicians (RCTs) - provide radiological monitoring for personnel exposure hazards. Performs pre-job and other radiological surveys. Ensures compliance

to the RWP and ensures appropriate actions are taken in response to radiological emergencies or contamination events.

3.3.4 Radiological Engineering

Radiological Engineering - defines the engineering, administrative, and work activity controls for identified radiological hazards. Defines personal protective equipment (PPE) requirements for non-routine radiological hazards. Defines requirements for the release of property or materials according to HSP 18.10 and Radiological Operating Instructions 3.02, and Radiological Engineering Procedure 1003.

3.4 Facility Manager

Facility Manager – ensures the safe and proper supervision, operation and maintenance of the Building 886 Cluster facility. Approves all project activities.

3.4.1 Shift Manager/Configuration Control Authority (CCA)

Shift Manager/CCA - coordinates and oversees all work activities at the site. Work control authority for all Building 886 Cluster tasks. Maintains the Plan of the Day (POD), attends pre-evolution briefings, ensures that tasks are ready to start work. No work is started without Shift Manager/CCA approval.

3.5 Site Workers

Site workers – comply with the task-specific HASP, AHAs, and applicable RFETS practices, procedures, and policies. Report any accidents, injuries, or near misses immediately to supervision. Assist with development of AHAs. Assure all required training is current.

3.6 Visitors

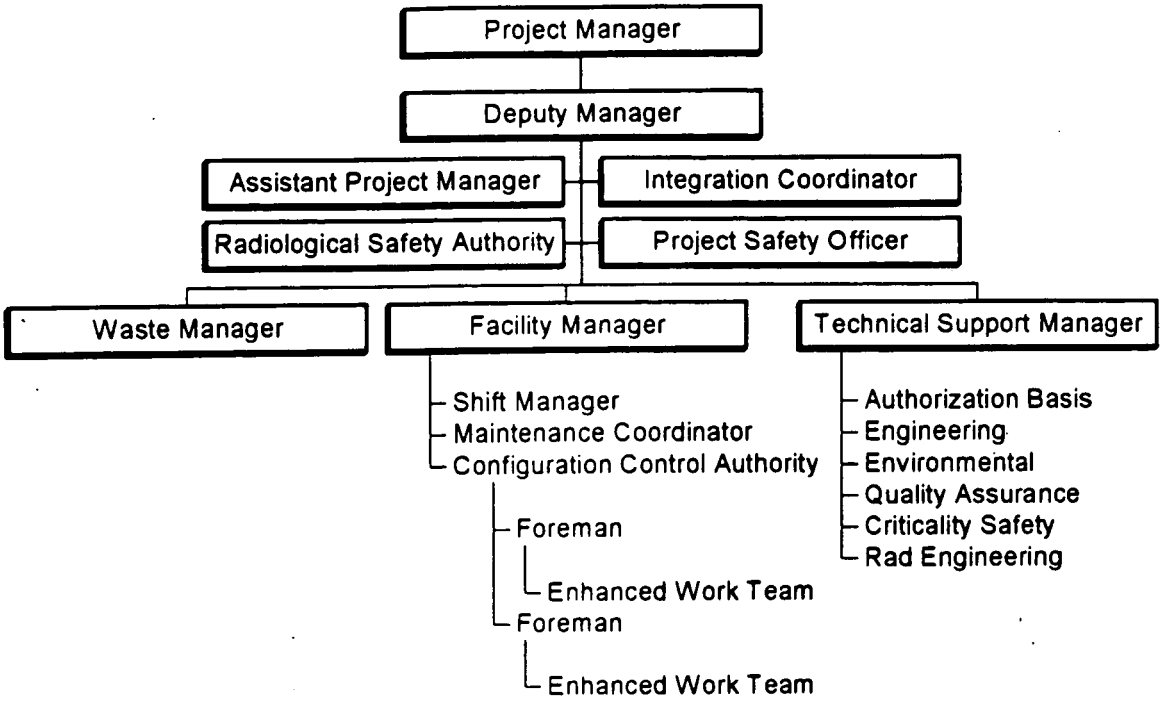
Visitors entering the work area during field activities will receive a briefing on the requirements of this HASP. In addition, visitors must have received General Employee Radiological Training or be escorted, wear dosimetry and other PPE, as required by the RWP, HASP, and AHAs. Normally, visitors will not perform hands on work activities. Training for visitors shall be commensurate with the areas being visited and meet the requirements of the site RCM, Article 622 or 657. Visitors who do not meet the training requirements for the site may be denied entry.

Visitors who enter any area of the activities where they may be exposed to hazards of the project must be trained on the requirements of this Project HASP. Visitors who enter the work area or sign in under the RWP, who do not meet the minimum training requirements

shall not be permitted to perform hands on work.

Figure 3-1

Building 886 Closure Project Organization



4. Hazard Assessment

4.1 Development of an Activity Hazard Assessment

For tasks with potential exposure to, with, or around health and safety hazards, an Activity Hazard Analysis (AHA) will be developed to describe the hazards as well as the actions necessary to eliminate or mitigate those hazards. This AHA will be developed through an Enhanced Work Planning session, which will include the craft involved in the work, the supervisor of that team, the Project Safety Officer or designated representative if industrial hazards are present, and the Radiological Safety Authority, if radiological hazards are present.

The first step in this process will be to break down the work task into logical steps in order to identify the hazards which may exist. It is important to remember that hazards other than those already known and characterized may exist. For example, a team may find unexpected contamination, either radiological or chemical, while involved in closure activities. Therefore, special care must be taken to ensure that all potential hazards are included in the analysis.

Once the hazards are identified, the guidance documents concerning these hazards must be reviewed. Table 4-1 identifies a number of potential hazards and the guidance documents to facilitate this process. It is the strategy in this project to comply with all Federal, State and DOE regulations. RFETS requirements which are above and beyond these Federal, State and DOE requirements will be considered for implementation. If it is determined that a RFETS-imposed control is inappropriate for the task at hand (i.e. incorrect, overly conservative, etc.) a waiver will be requested, and if approved, the project will continue (if the waiver is not granted, the RFETS requirements will be incorporated, if possible). At the same time the waiver is requested, a Document Modification Request will be issued for the procedure as well, to correct the issue for future projects, if appropriate. Hazards not identified on this list should be reviewed with the Project Safety Officer, or the Radiological Safety Authority, as applicable for the mitigative actions.

From these two steps, the hazards and necessary mitigative actions are determined, and an Activity Hazard Analysis is written and reviewed by the team performing the work. Concurrence is then obtained from the Supervisor, Project Safety Officer, and Radiological Safety Authority, or their designees.

4.2 Monitoring for Hazardous Constituents

4.2.1 Chemical Hazard Monitoring

The need for chemical hazard monitoring will be determined by the Project Safety Officer or designee. All air sampling and monitoring will be performed in accordance with approved National Institute of Occupational Safety and Health or OSHA sampling

methods using either direct reading instrumentation or personal air sampling as directed by the IH&S lead or designee. All instrumentation used will be calibrated in accordance with factory recommendations.

4.2.2 Radiological Hazard Monitoring

Air monitoring within the work areas will be performed using portable Continuous Air Monitors (CAMs), high volume and low volume air sampling. The use of portable CAMs allows the project flexibility in monitoring locations, resulting in more effective monitoring. Training on the use and response of these monitors will be provided to all project personnel. Personnel monitoring for radiological hazards will be identified in RWPs and the ALARA job reviews. All radiological monitoring will be performed in accordance with the procedures contained in the RFETS HSP Manual, RFETS Radiological Control Manual, and the Radiological Operating Instructions (ROI).

4.3 Determining the hazards and controls

For each activity, hazards will be identified. The table below is comprised of the typical hazards which may be identified, and point the reader to the appropriate document that delineates the requirements which mitigate that hazard.

It is important to recognize that there may be additional hazards from those identified below. Work teams will interact closely with the Radiological Safety Authority as well as the Project Safety Officer to ensure that appropriate mitigative actions are in place prior to work progressing.

Table 4-1 Hazards and Associated Procedures/Documents

Title	Procedure #
Construction Safety And Health Req.	1-C18-HSP-24.01
Administration Of Industrial Hygiene And Safety Design Review.	1-E77-HSP-2.10
Aerosol Spray Cans	HSP 11.02
ALARA Goals In Reducing Personnel Radiation Doses	HSP 18.18
ALARA Job Review	ALARA PROGRAM PLAN
Ambulance Service	HSP 4.12
Application Of Floor Paint And Sealers	HSP/FLP 34.04
Area Monitoring Dosimetry Program	1-R81-HSP-18.23
Assessing Occupational Radiation Exposure Histories	1-P20-HSP-18.14
Batteries	1-P79-HSP-15.01
Beryllium Protection	1-15310-HSP-13.04
Breathing Air	1-F13-HSP-7.05
Building Indoctrination And Reindoctrination	HSP 10.02
Carcinogen Control	HSP 13.03
Chemical Tracking	1-B44-HSP-9.12
Compressed Gas Cylinders	1-62300-HSP-11.01
Confined Space Entry	1-E36-HSP-6.04, 29CFR1926.21, 29CFR1910.146, AND CONFINED SPACE ENTRY PROGRAM
Control Of Field Radiography Using Sealed Radioactive Sources	1-S39-HSP-18.13
Control Of Radiation-Generating Devices	1-I83-HSP-18.05
Control Of Radioactive Sources	1-P21-HSP-18.04
Controlling Introduction Of Combustibles	HSP-FLP-31.04
Cranes	29CFR1926.550
Criteria And Actions For Potential Intakes	1-M96-HSP-18.19
Domestic Water	1-15310-HSP-13.06
Electrical Hazardous (Special Occupancies) Locations	1-62300-HSP-15.10, 29CFR1926.400
Electrical Precautions	HSP/FLP 31.02, 29CFR1926.400
Electrical Safety Practices	HSP 15.00, 29CFR1926.400
Emergency Alarms And Response	1-N02-HSP-18.15
Emergency Medical Response	HSP-4.02, 29CFR1926.23
Emergency Response And Spill Control	1-N08-HSP-21.04

Table 4-1 Hazard and Associated Procedures/Documents (Continued)

Title	Procedure #
Emergency Shower And Eye Wash Req.	1-B93-HSP-7.04
Ergonomics	1-P44-HSP-13.09
Excavations And Trenching	1-B37-HSP-12.08, 29CFR1926.650
Existing Electrical Utilization Systems Requirements	1-62300-HSP-15.09
Exits (Means Of Egress)	HSP 22.01
Explosives Safety	HSP-19.03
External Radiation Dosimetry	1-E96-HSP-18.07
Eye And Face Protection Program	1-62300-HSP-7.01, 29CFR1926.102
Fall Protection And Equipment	HSP22.05, 29CFR1926.104
Fire Barriers	1-X48-HSP-33.01, 29CFR1926.24,.150
Fire Dampers	HSP/FLP 34.10, 29CFR1926.24,.150
Fire Lane Identification	HSP-FLP 32.05, 29CFR1926.24,.150
Fire Prevention Inspection	HSP-FLP-31.06, 29CFR1926.24,.150
Fire Reporting	HSP 32.04, 29CFR1926.24,.150
Fire Signs And Symbols	HSP/FLP 32.03, 29CFR1926.24,.150
Fire Systems Impairments	1-N20-HSP-34.01, 29CFR1926.24,.150
Fire Watches	1-65000-HSP-34.06, 29CFR1926.24,.150
Flammable Liquid Storage Cabinets	HSP-FLP-32.02, 29CFR1926.24,.150
Floors, Stairways	1-62300-HSP-22.07, 29CFR1926.500
Freight And Passenger Elevators	1-D71-HSP-22.04
Glovebag Practices	1-I81-HSP-18.16
Glovebox Fire Protection	HSP/FLP 34.07
Gloveboxes, Hoods, And B-Boxes	1-M95-HSP-18.11
Hand And Portable Power Tools	HSP-12.10
Handling And Storage Of Flammable And Combustible Liquids For Fire Safety	1-X45-HSP-32.01
Hazard Assessment Inventory	1-15310-HSP-9.13
Hazardous Waste Operations	1-62200-HSP-21.03
Hazards And Deficiencies Abatement Management Process	1-E35-HSP-1.06
Head Protection	HSP 7.07
Hearing Conservation	1-I87-HSP-7.06, 29CFR1926.52, .101
Hoisting And Rigging	1-K71-HSP-12.02, 29CFR1926.251
Hot Work	1-W13-HSP-31.10
Housekeeping And Sanitation	1-62200-HSP-13.08, 29CFR1926.25, .27
Industrial Hygiene	HSP-13.01
Industrial Robots And Robotic Systems	HSP 12.04, 29CFR1926.600
Interior Finish	1-X57-HSP-33.05
Ladders	1-K59-HSP-22.02, 29CFR1926.1050

Table 4-1 Hazard and Associated Procedures/Documents (Continued)

Title	Procedure #
Laser Safety	HSP 16.01
Lead Control Program	1-15310-HSP-13.07
Lighting	29CFR1926.56
Lockout/Tagout	1-15320-HSP-2.08, 29CFR1926.417
Machine Safe Guarding	HSP-12.09
Maintenance Line Distribution Work	1-M26-HSP-15.05
Material Storage Label	HSP-9.01, 29CFR1926.250
Means Of Egress	1-X50-HSP-33.04
Non-Emergency Use Of Fire Hydrants	HSP/FLP 32.08
Occupancy Restriction Order	1-65000-HSP-31.13
Occupational Foot Protection	1-A71-HSP-7.02
Occupational Safety And Health Rights And Responsibilities	HSP 5.05
Operators Card For Special Equipment	HSP 6.08
Storage Of Plutonium For Fire Safety	1-W89-HSP-31.11
Personnel Protective Equip.	29CFR1926.28, .100
Physical Examinations	1-66100-HSP-4.09
Physical Hazards, Barricades, And Accident Prevention Signs And Tags	1-62300-HSP-10.01
Plastic House Fire Protection	1-X65-HSP-34.09
Portable Fire Extinguishers	1-PRO-011-HSP-34.02
Portable Fuel-Fired Heaters	HSP/FLP 31.09
Power Transmission And Distribution	1-15320-HSP-15.08
Powered Industrial Trucks	HSP 9.06, 29CFR1926.600
Pressure Vessels, Pressure Systems And Relief Devices	1-62300-HSP-11.03
Protection From Reproductive Hazards	1-A81-HSP-4.13
Radioactive Contamination Control And Decontamination	1-P03-HSP-18.12
Radioactive Material Transfer And Unrestricted Release Of Property And Waste	1-P73-HSP-18.10
Radiological Assistance Plan	HSP-18.17
Radiological Control Policy And Responsibilities	1- N72-HSP-18.00
Radiological Control Training And Qualification	1-Q26-HSP-5.06
Radiological Deficiency Report	1-H02-HSP-3.02
Radiological Decontamination	HSP 18.02, 18.12, 6.07

Table 4-1 Hazard and Associated Procedures/Documents (Continued)

Title	Procedure #
Radiological Requirements For Entering And Exiting Areas Controlled For Radiological Purposes	1-C55-HSP-18.02
Radiological Work Permits	1-N71-HSP-6.07
Red Tag Procedures	HSP 2.06
Respiratory Protection	1-N07-HSP-7.03, 29CFR1926.103
Roofing Operations	HSP/FLO 31.08
Safe Handling Of Asbestos	1-62200-HSP-9.09
Safe Work Apparel	1-A69-HSP-8.01
Safety Meetings And Safety Inspections	1-A68-HSP-2.01
Scaffolds	1-B54-HSP-22.03, 29CFR1926.451
Self-Monitoring	1-M94-HSP-18.09
Signs, Signals, Barricades	29CFR1926.200
Spray Painting Using Toxic, Flammable, And Combustible Materials	1-X58-HSP-34.08
Storage And Disposal Of Non-plutonium Metal Fines	HSP-9.02
Surface Water Monitoring And Control	HSP-20.02
Temporary Outside Above-Ground Fuel Storage	HSP/FLP 32.06
Tools, Hand And Power	29CFR1926.300
Toxic Chemical Control	HSP 13.05
Transfer And Storage Of Pyrophoric Metals Other Than Plutonium For Fire Safety	1-X46-HSP-31.12
Transfer Of Hazardous Liquids	HSP-9.10
Transuranium Registry	HSP-4.04
Use Of Production Equipment For Development Tasks	HSP 2.09
Ventilation To Control Hazardous Materials	HSP-2.14, 29CFR1926.57
Welding, Cutting, And Brazing	HSP 12.11, 29CFR1926.350
Welding Permits	HSP/FLP 31.10
Work Platforms	HSP 22.06

5. Training Requirements

Training is an important component of safety within the Building 886 Cluster Closure Project. In order to determine the appropriate training, a team of people reviewed the entire list of available training at RFETS, and determined a "base set" of training for each grouping of employees based on their job activities. This "base set" can be either the RFETS version of the course, or an equal course provided by an outside organization. In order to reduce overall project costs, the implementation of "block training" methods will be utilized if appropriate. All project field personnel shall receive pre-construction safety and health orientation in accordance with 1-C18-HSP-24.01, Section 8.1 and receive the "base set" training (or appropriate re-qualification) in accordance with the Building 886 Project Training Matrix, Table 5-1. Retraining frequencies will be maintained in accordance with the Training User's Manual.

In addition to this "base set", other courses were identified as potentially required, and were identified to be provided on an "As Needed" basis. To determine if additional training is required, a review will be performed of the training necessary for safe performance prior to each task, during the creation of the AHA. Any training which is in addition to the "base set" training will be identified on the AHA form and must be completed prior to starting the activity.

In addition to "base set" training and job specific training, job site-specific training shall be performed as part of pre-job briefings, AHA briefings, "tool-box" safety training, or regular safety meetings. Briefings shall be conducted whenever this HASP is technically revised and where it impacts field conditions, when new AHAs are developed or when AHAs are revised due to work conditions changing.

As new training requirements are identified at RFETS, the Technical Support Manager with the training department will review the requirement against the work being performed in this project. If applicable, the training will be added to the Project Training Matrix.

Table 5.1
Building 886 Project Training Matrix

Legend "-" = Not Required "AN" = As Needed "X" = Required	Closure Project Mgmt	Project Safety Officer	Radiological Safety Authority	Shift Manager	Maint. Coor.	Waste Manager	Config. Control Authority	Technical Support Manager	Secretary/ Clerical Support	Stationary Operating Engineers	Process Specialists / Equip. Op.	D& D Workers	Building Trades	RCT's
Aerial Lift	-	AN	-	-	-	-	-	-	-	-	AN	AN	AN	-
Alarms	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Asbestos Awareness	-	AN	-	X	X	X	X	-	X	X	X	X	X	X
Enhanced Worker Planning	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Building Indoctrination	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Computer Security	X	X	X	X	X	X	X	X	X	-	-	-	-	-
Confined Space	-	X	-	-	-	-	-	-	-	AN	AN	AN	AN	AN
Electrical Safety for Elec. Workers	-	-	-	-	-	-	-	-	-	-	AN	AN	AN	-
Electrical Safety	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fall Protection	-	AN	-	-	-	-	-	-	-	X	X	X	X	X
GET	X	X	X	X	X	X	X	X	X	X	X	X	X	X
GERT	-	-	-	-	-	-	-	-	X	-	-	-	-	-
Glovebag	-	AN	-	-	-	-	-	-	-	-	X	X	X	X
Glovebox	-	AN	-	-	-	-	-	-	-	-	X	X	-	-
Hazard Comm. Indoc.	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hazard Comm. CBT	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Health and Safety Plan Briefing	X	X	X	X	X	X	X	X	X	X	X	X	X	X
40 Hour OSHA	AN	X	AN	AN	AN	AN	AN	AN	-	-	AN	AN	AN	AN
8 Hr OSHA (Supervisor)	AN	X	AN	AN	X	X	X	X	-	-	-	-	-	-
Hearing Conservation	X	X	X	X	X	X	X	AN	X	X	X	X	X	X
Forklift Training	-	AN	-	-	-	-	-	-	-	-	AN	AN	AN	AN
Ladder Safety	-	AN	-	X	-	-	X	-	-	X	X	X	X	X
Lead Awareness	-	AN	-	X	-	X	X	-	-	X	X	X	X	X
LO/TO	-	AN	-	X	X	-	X	-	-	X	AN	AN	AN	AN
Nuclear Criticality Safety	AN	AN	AN	X	X	AN	X	AN	X	AN	X	X	AN	AN
Nuclear Material Safeguards	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN
OJT/Basic Instructor Training	-	-	-	-	X	X	X	X	-	AN	AN	AN	AN	AN

Table 5.1
Building 886 Project Training Matrix

Legend "-" = Not Required "AN" = As Needed "X" = Required	Closure Project Mgmt	Project Safety Officer	Radiological Safety Authority	Shift Manager	Maint. Coor.	Waste Manager	Config. Control Authority	Technical Support Manager	Secretary/ Clerical Support	Stationary Operating Engineers	Process Specialists / Equip. Op.	D& D Workers	Building Trades	RCT's
Premaire	-	AN	-	-	-	-	-	-	-	AN	AN	AN	AN	AN
Pressure Safety	-	AN	-	X	X	-	X	-	-	AN	AN	AN	AN	AN
RCT Qualification	-	-	-	-	-	-	-	-	-	-	-	-	-	X
Rad Source Custodian	-	-	X	-	-	-	-	-	-	-	-	-	-	-
Rad Worker II	X	X	X	X	X	X	X	AN	-	X	X	X	X	X
Rad Worker Annual Refresher	X	X	X	X	X	X	X	AN	-	X	X	X	X	-
Rad Worker Supervisor	X	X	X	X	X	X	X	X	-	-	-	-	-	-
RCRA	AN	AN	AN	AN	AN	X	AN	AN	-	-	AN	AN	AN	AN
RCRA Qualification	AN	AN	AN	AN	AN	X	AN	AN	-	-	AN	AN	AN	AN
RCRA/Waste Generator	AN	AN	AN	AN	X	X	X	AN	-	X	X	X	X	X
Respirator Indoc - Super	-	X	X	X	X	X	-	X	-	-	-	-	-	-
Respirator Indoc - User	AN	X	AN	AN	X	AN	X	AN	-	X	X	X	X	X
SCBA	-	AN	-	-	-	-	-	-	-	AN	AN	AN	AN	AN
Scaffolding Safety	-	AN	-	-	-	-	-	-	-	-	AN	AN	AN	AN
Shift Manager Qualification	-	-	-	-	-	-	X	-	-	-	-	-	-	-
SOE Qualification	-	-	-	-	-	-	-	-	-	X	-	-	-	-
PAPR	-	AN	-	-	-	-	-	-	-	AN	AN	AN	AN	AN
Tamper Indicating Devices	-	AN	-	X	-	-	X	-	-	AN	X	X	AN	AN
Welding Safety	-	AN	-	-	-	-	-	-	-	-	AN	AN	AN	AN
WSRIC	-													
Medical Surveillance-Respirator	AN	X	AN	AN	AN	AN	AN	AN	-	X	X	X	X	X
Medical Surveillance- Lead	-	AN	-	-	-	-	-	-	-	AN	AN	AN	AN	AN
Medical Surveillance-Asbestos	-	AN	-	-	-	-	-	-	-	AN	AN	AN	AN	AN
Medical Surveillance- Haz. Waste Worker	AN	AN	AN	AN	AN	AN	AN	AN	-	AN	AN	AN	AN	AN
Respirator Fit Test	AN	X	AN	X	AN	AN	X	AN	-	X	X	X	X	X

6. Personal Protective Equipment (PPE) Program

PPE for the project will be selected by IH&S and Radiological Safety personnel for the specific hazards to be encountered. Workers will be trained in the use, maintenance, and disposal of the PPE assigned to them in accordance with 29 CFR 1910.132 and the RFETS respiratory protection program.

As job conditions dictate, the Project Safety Officer will evaluate the specific PPE for that particular task(s). This may involve the use of level A (the most protective), level B, level C, or level D (the least protective) PPE. When prescribing PPE, the following factors will be considered:

- Hazards of the task
- Permeability, degradability, penetrability by specific agents expected for the job task(s)
- Heat/cold (thermal effects)
- Durability
- Flexibility
- Ease of decontamination
- Compatibility with other equipment
- Special conditions (fire, explosive, electrical, chemical, radiological, O_2 deficient atmospheres, etc.)

At a minimum, personnel performing D&D activities shall wear the following personnel protective equipment:

- Safety glasses with side shields
- Hard hats (in posted hard hat areas)
- Above the ankle safety boots
- Appropriate work clothes such as coveralls; and
- Additional PPE as prescribed by the RWP and AHA

7. Medical Surveillance

Project personnel who are or may be exposed to hazardous substances or health hazards will receive hazardous waste worker medical surveillance as specified below:

Exposure to:	Medical Surveillance Required:
Lead	Baseline blood test for lead and zinc protoporphyrin, in accordance with 29 CFR 1926.62.
Asbestos	Medical monitoring requirements as defined in 29 CFR 1926.1101.
Haz. Waste Worker	Medical monitoring requirements as defined in 29CFR1926.65
Nuclear Worker	Medical monitoring requirements as defined in DOE 5480.8A

8. Site Control Measures

8.1 Site Communications

Project personnel will have access to telephones and/or radios located in the immediate area. Emergency information will be communicated to the Building 886 Cluster by way of the Life Safety/Disaster Warning (LS/DW) system or radios when in areas without LS/DW access (reference Figure 8-1 to view a map of the Building 886 Cluster layout).

8.2 Work Zones

The project site will be posted as a work area and access to the area will be limited to those personnel working on the project. Additional work zones such as regulated areas for lead, asbestos and radiological hazards will be established in accordance with the applicable requirements and will be indicated in the AHAs. Building 886 Maintenance and Surveillance personnel will require access due to ongoing activities; however, they will be required to comply with the applicable portions of this HASP and the associated AHAs. Operations and Maintenance personnel shall be briefed on the HASP and sign in on the briefing form.

8.3 Housekeeping

During the decommissioning process of the Building 886 Cluster, housekeeping will be of utmost importance throughout the project. HSP 13.08 and OSHA Standard 1926. 25 will be utilized as the minimum standards for housekeeping. Everyone working on the project team will be responsible for maintaining the cleanliness of work and break areas. The following items are listed as general expectations for housekeeping responsibilities:

- Maintain hallways, stairs and entries clear of materials and debris. If the work task is

completed or the shift is wrapping-up, the job is not done until the work area is cleaned-up.

- Remove trash regularly. Trash containers must not be filled above capacity. All trash and debris must be disposed of properly. Any questions regarding proper disposal should be directed to the Waste Manager.
- Smoking, eating and drinking will be allowed in designated areas only. All personnel are reminded to keep these break areas clean.
- Every member of the project team is expected to take action if encountering conditions in the facility that are unsafe, including housekeeping. Any concerns regarding the housekeeping or safe work environment on the project should be communicated to supervision and project Health and Safety personnel as soon as possible.

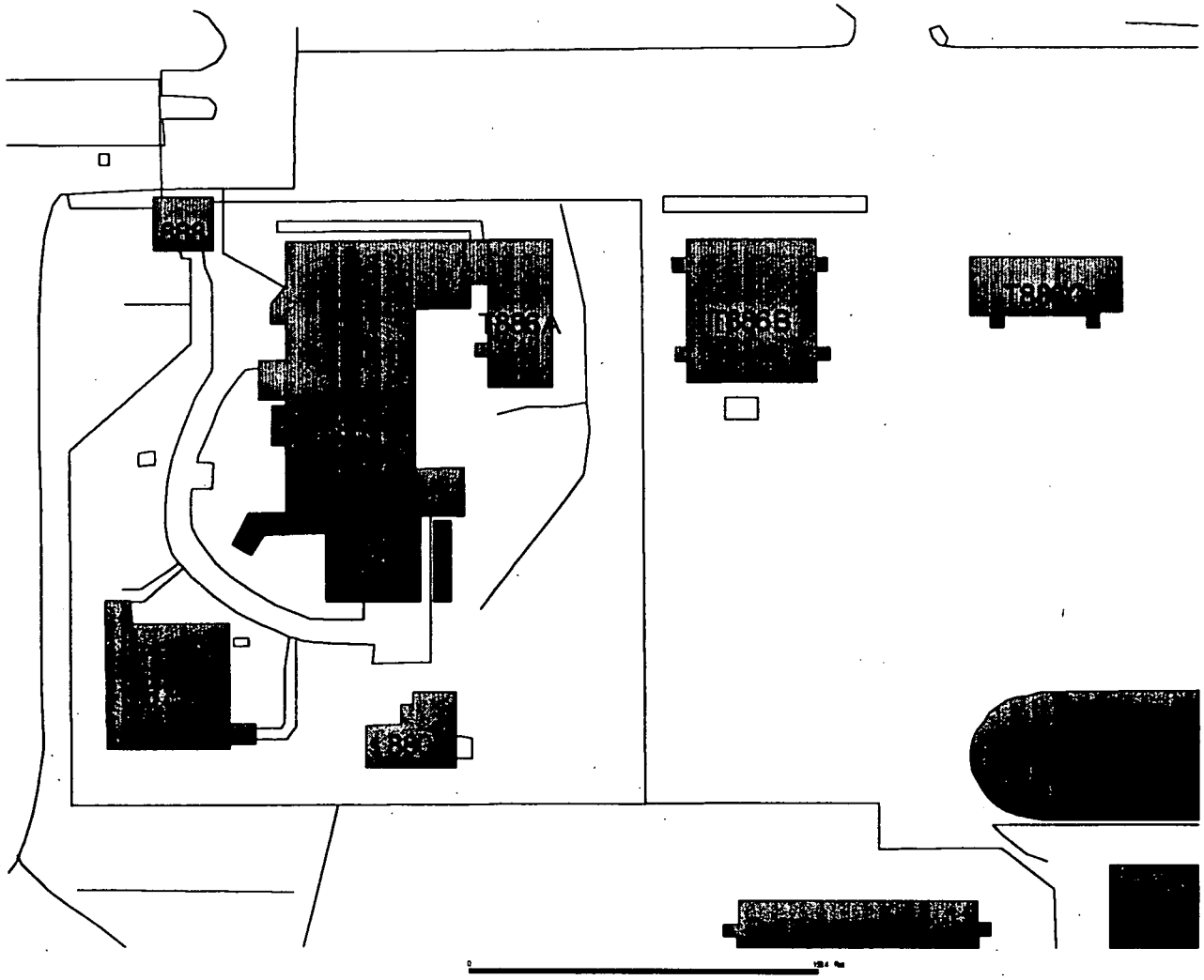
8.4 Site Access

Entry into the Building 886 Clusters are limited to personnel requiring access; for routine operations, maintenance, and performing activities addressed by this plan. Personnel requiring access must have completed the required training, medical surveillance, and wear the prescribed PPE, signed-in on the RWP and have reviewed the AHA, as applicable.

8.5 Sanitation

Sanitation facilities, potable water, and change locations will be available and located in close proximity of work areas, and ensure compliance with 29 CFR 1926.51.

Figure 8-1 Building 886 Layout



9. Decontamination Procedures

Specific project decontamination activities will be planned and performed, depending on the hazard, in accordance with the following documents:

Hazard	Decontamination Requirements
RADIOLOGICAL	Decontamination of radiological contamination will be performed in accordance with the RFETS Radiological Control Manual, HSP 18.12, and as specified in the RWP.
LEAD	Decontamination of lead will be performed in accordance with 29 CFR 1926.62 (g), (h), (I), and project-specific Lead Compliance Plans.
ASBESTOS	Removal of ACMs will be performed in accordance with 29 CFR 1926.1101, Environmental Protection Agency 40 CFR 763 and the Asbestos Abatement Plan.

The need for decontamination of any other hazard(s) will be evaluated and documented prior to actual decontamination activities.

10. Emergency Response

10.1 Pre-Emergency Planning

All project team personnel will be informed of the emergency response procedures contained in this plan and the site-specific Building 886 Emergency Plan. Emergency response procedures are normally presented during building indoctrination training. Prior to conducting abnormal evolutions appropriate emergency response procedures shall be approved. Building 886 management will be aware of project activities by way of the 886 Plan-of-the-Day meeting.

10.2 Communication

In the event of an incident requiring emergency response, call extension 2911 by telephone. Also, report emergencies to the 886 Configuration Control Authority and the Project Manager. These personnel can be reached via phone, radio and pager communications, using the facility call list.

10.3 Safe Distances And Places Of Refuge

In the event of an incident requiring emergency evacuation of the facility, all personnel will evacuate, follow LS/DW instructions and assemble at the designated 886 assembly areas. All alarms and response procedures shall be followed in Building 886 and supporting

facilities.

10.4 Evacuation Routes

Evacuation routes are posted at various locations within the building(s) and project personnel will be informed of the routes during pre-evolution briefings.

10.5 Emergency Medical Treatment And First Aid

Emergency medical assistance can be obtained by calling extension 2911 by phone. Site Emergency Response personnel will determine if off-site medical transportation and assistance is required. Individuals requiring non-emergency medical treatment or first aid will be transported to the Occupational Health Clinic, Building 122 for treatment and will be accompanied by the individual's supervisor and the safety representative. The Configuration Control Authority and the Project Manager shall be immediately notified of any such incidents.

10.6 PPE And Emergency Equipment

The project will maintain available the PPE necessary to perform work as outlined in the AHA. In addition, fire extinguishers will be available at the project site. The RFETS Fire Department and HazMat Team maintains a supply of additional emergency equipment.

11. Post Construction Activities

The Project Manager shall prepare a final report detailing the safety and health performance during the construction activity or project. The final report shall be in the form of self-assessment and will evaluate the safety and health performance of all subcontractors, lower-tier subcontractors, and vendors.

The final report shall include the following:

1. Copy of the Daily Log maintained by the Project Safety Officer
2. Copies of all accident and incident investigation reports.
3. Total number of first-aid cases incurred.
4. Total number of Radiological Deficiency Reports
5. Copies of the OSHA 200 Logs for the project and all subcontractor personnel.

6. Final totals of employee hours worked for the project and all subcontractor personnel.

7. Copies of all OSHA, DOE, and Rocky Flats safety and health training records, safety meeting reports, and attendance roster associated with the performance of the construction project or activity.

12. Management Assessments

It is important to perform periodic assessments on the activities being conducted to determine adherence to applicable requirements and implementation of best management practices. The Management Assessment Program (MAP) is the tool to be used to perform such assessments for this project. The MAP identifies and documents findings, observations, and noteworthy practices; initiates required corrective actions; and reports the effectiveness, adequacy, efficiency, and economy of programs, activities, and processes to the appropriate level of management.

Assessments shall be based on a graded approach commensurate with:

- The relative importance or risk to safety, safeguards, security, and the environment;
- The magnitude of any hazard involved
- The life cycle stage of the facility
- The programmatic mission of the facility
- The particular characteristics of the facility; and
- Any other relevant factor

The performance of MAP assessments is not restricted to those personnel who have an organizational title of manager or supervisor but may include others, such as leads, subject matter experts, etc.

The assessments scheduled to be performed during this project are listed Table 12-1. The master list will be held by the Technical Support Manger. This list may be modified by the Project Manager as appropriate to support the overall goals and objectives of the project.

Table 12.1

Management Assessment Schedule

	Nov 97	Dec 97	Jan 98	Feb 98	Mar 98	Apr 98	May 98	Jun 98	Jul 98	Aug 98	Sep 98	Oct 98	Nov 98	Dec 98	Jan 99	Feb 99	Mar 99	Apr 99	May 99	Jun 99	Jul 99	Aug 99	Sep 99	Oct 99	Nov 99
Decontamination & Decommissioning	X	X			X			X			X			X			X			X			X		
Training & Qualification							X												X						
Occupational Safety & Health	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Radiation Protection				X			X			X			X			X			X			X			X
Waste Management			X						X						X						X				
Emergency Preparedness					X												X								
Nuclear Safety			X						X						X						X				
Criticality Safety				X			X																X		
Conduct of Operations			X			X			X			X			X			X			X			X	

1.

13. Recordkeeping Requirements

All documents are prepared, reviewed and approved in accordance with RMRS DC-06.01, Document Control Program. Since this activity is considered a CERCLA removal action, all AR records generated shall be identified, handled and submitted in accordance with RM-06.04, the RMRS Administrative Record Document Identification and Transmittal Procedure. All non-AR records shall b e handled in accordance with RM-06.02, RMRS Records Identification, Generation and Transmittal Procedure.

A. Occurrences shall be reported via the current RFETS Occurrence Reporting procedure. Lessons learned from previous occurrences, both at RFETS, as well as from other sites, shall be shared with the project team during safety meetings.

B. Any individual experiencing an injury or illness shall report to the Occupational Health department for evaluation. Worker must notify their supervisor and be accompanied by the supervisor and a safety representative.

C. All accident and incident investigation reports shall be completed as required by the Health & Safety Practices Manual.

Note: RFETS requires that all occupational injuries or illnesses, motor vehicle accidents resulting in more than $500.00 damage, personal injury, property damage incidents, or fires resulting in $1,000.00 or more in damage be investigated and reported.

D. A properly completed Individual Accident/Incident Report shall be submitted to Project Manager within 24 hours of the accident or incident.

E. The following information shall be provided to the Project Manager by the third working day of each month or at the completion of the construction activity, whichever comes first:

1. Requested information pertinent to first-aid cases.
2. Employee hours worked.
3. OSHA incidence rates for the project in progress or completed.

The same statistical information shall be submitted for any construction subcontractor,

lower-tier subcontractor, and vendor who has performed work on the project.

Any subcontractor performing construction at RFETS shall maintain and make available for review an up-to-date OSHA 200 Log pertinent to construction activities at RFETS.

The following records shall be maintained for subcontractors, lower-tier subcontractors, and vendors during the performance of the project:

- First-aid cases
- Employee hours worked
- OSHA 200 Logs
- OSHA incident rates

Appendix A

ACTIVITY HAZARD ANALYSIS

AHA INDEX NUMBER: 886-	PAGE 1 OF
JOB/ PROJECT:	
ACTIVITY DESCRIPTION:	

PROCEDURAL STEP	POTENTIAL HAZARD	PROTECTIVE/CONTROL MEASURE

H&S TRAINING:	SPECIAL EQUIPMENT:

SUPERVISOR :	DATE:
PROJECT SAFETY OFFICER:	DATE:
RAD SAFETY AUTHORITY:	DATE:

Appendix A

ACTIVITY HAZARD ANALYSIS CONTINUATION SHEET

AHA INDEX NUMBER: 886-	PAGE OF
JOB/ PROJECT:	
ACTIVITY DESCRIPTION:	

PROCEDURAL STEP	POTENTIAL HAZARD	PROTECTIVE/CONTROL MEASURE